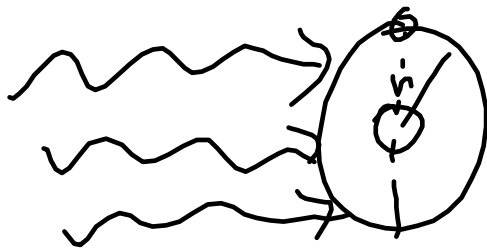


Tomorrow- New Rotation

<https://www.youtube.com/watch?v=N0sb1SZxCAs>

p1048
Q29



$$I = \frac{P}{A} = \frac{\text{Energy}/t}{A}$$

$$t = \frac{\text{Energy}}{I A} = \frac{1 \text{ eV} \left(\frac{1.602 \times 10^{-19} \text{ J}}{1 \text{ eV}} \right)}{\left(\frac{10 \text{ W}}{\text{m}^2} \right) (\pi (10^{-10})^2)}$$

$$t = 0.51 \text{ s} \rightarrow 10 \text{ s}$$

$$t = \frac{1 \text{ eV} (1.602 \times 10^{-19} \text{ J/eV})}{10 \text{ W/m}^2 (\pi (10^{-10})^2)}$$

$$t = 0.5 \times 10^7 \rightarrow 1.0 \times 10^7 \text{ s}$$

$$t = 10^7 \left(\frac{1}{365} \right) \left(\frac{1}{24} \right) \left(\frac{1}{3600 \text{ s}} \right)$$

$$t = 0.32 \text{ years}$$